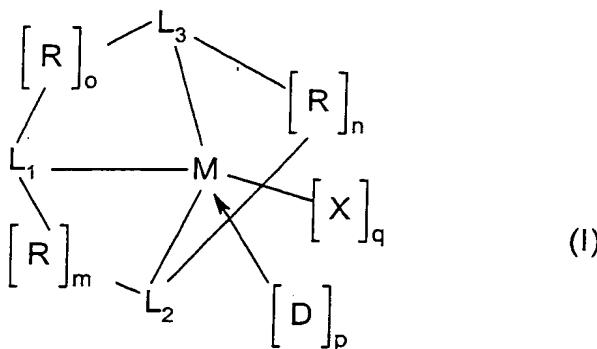


Claims

1. Olefin polymerization catalyst component comprising an organometallic compound of general formula I



5

wherein:

M is a transition metal of groups 3, 4-10, lanthanide or actinide of the periodic table of the elements, preferably titanium, zirconium or hafnium;

each R is independently a structural bridge rigidly connecting two ligands L₁, L₂ and L₃ and is constituted by 1 to 4 chain atoms selected from carbon, silicon, germanium, oxygen, boron;

m, n and o are 0 or 1, with the proviso that m+n+o is 2 or 3; ??

10
112
L₁ is a ligand of the cyclopentadienyl type or is isolobal to cyclopentadienyl, preferably a cyclopentadienyl, indenyl or fluorenyl ring, cyclopenteno[b]tiophenyl, cyclopenteno[b:b']-dithiophenyl, cyclopenteno[b]pyrrolyl, boratabenzene, phospholyl, dihydroindeno[b]indolyl, optionally substituted by one or more R¹ groups; most preferably a cyclopentadienyl, indenyl or fluorenyl ring, optionally substituted by one or more R¹ groups;

15
L₂ is a ligand of the cyclopentadienyl type or is isolobal to cyclopentadienyl, or a monovalent anionic ligand selected from the group consisting of N, P, B when m+n =2, it is selected from the group consisting of NR¹, PR¹, BR¹, O and S when m+n =1;

20
L₃ is a monovalent anionic ligand selected from the group consisting of N, P, B when n+o =2, it is selected from the group consisting of NR¹, PR¹, BR¹, O and S when n+o =1;

25
112
R¹ is hydrogen, C₁-C₂₀ alkyl, C₃-C₂₀ cycloalkyl, C₆-C₂₀ aryl, C₃-C₂₀ alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br;

each X is independently selected from the group consisting of hydrogen, halogen, NR^2 , R^2 with R^2 equal to C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_3-C_{20} alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br;

q is a number whose value is: 0, 1, 2 or 3, depending on the valency of the metal M;

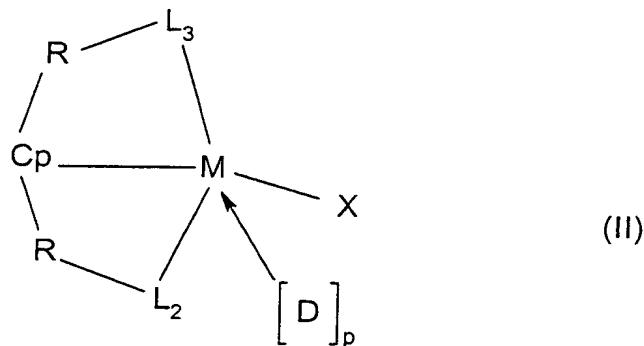
5 D is a neutral Lewis base,

p is a number whose value is: 0, 1, 2 or 3.

2. Catalyst component according to claim 1, wherein n is 0 and each R is independently selected from CR^1_2 , SiR^1_2 , $CR^1_2-CR^1_2$, $CR^1_2-SiR^1_2$, $SiR^1_2-SiR^1_2$; wherein R^1 is independently selected from hydrogen, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_3-C_{20} alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br.

10 3. Catalyst component according to claim 1 wherein D is selected from the group consisting of linear or cyclic ethers, amines and phosphines.

15 4. Catalyst component according to claim 1 wherein the organometallic compound has formula (II)



wherein Cp is a cyclopentadienyl or indenyl ring, optionally substituted by one or more R^1 groups, M is selected from Ti, Zr and Hf

20 each R is independently selected from CR^1_2 , SiR^1_2 , $CR^1_2-CR^1_2$, $CR^1_2-SiR^1_2$, $SiR^1_2-SiR^1_2$, wherein R^1 is hydrogen, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_3-C_{20} alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br.

L_2 and L_3 are independently selected from the group consisting of NR^1 , PR^1 , BR^1 , O and S;

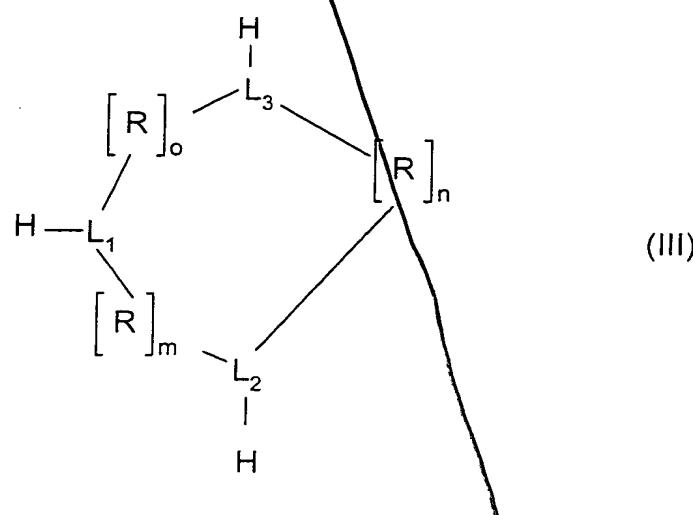
46052476.014202

X is independently selected from the group consisting of hydrogen, halogen, NR₂, R² with R² equal to C₁-C₂₀ alkyl, C₃-C₂₀ cycloalkyl, C₆-C₂₀ aryl, C₃-C₂₀ alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br.

D is a neutral Lewis base;

5 p is a number whose value is: 0, 1, 2 or 3.

5. Catalyst component according to claim 1 wherein o is equal to 0.
 6. Catalyst component according to claim 1 wherein at least one L group selected from L₁, L₂ and L₃ and/or one R group contains a -O-SiR₃²⁻ group.
 7. Catalyst component comprising a compound according to claims 1-6 and a porous support.
 8. Olefin polymerization catalyst comprising a catalyst component according to claims 1-7 and a cocatalyst selected from aluminoxanes and boron Lewis acids.
 9. Process for the preparation of catalyst components according to claims 1-6 including reacting a compound of formula MX_{q+3} wherein M is a transition metal of groups 3, 4-10, lanthanide or actinide of the periodic table of the elements, X is a monovalent anionic ligand and q is 0, 1, 2, or 3 depending on the valence of the metal M, with a compound of formula III



Q! Cont.

40

each **R** is independently a structural bridge rigidly connecting L_1 , L_2 and L_3 and is constituted by 1 to 4 chain atoms selected from carbon, silicon, germanium, oxygen, boron; these atoms can be part of fused rings, aromatics rings or spiro rings;

m, **n** and **o** are 0 or 1, with the proviso that $m+n+o$ is 2 or 3.

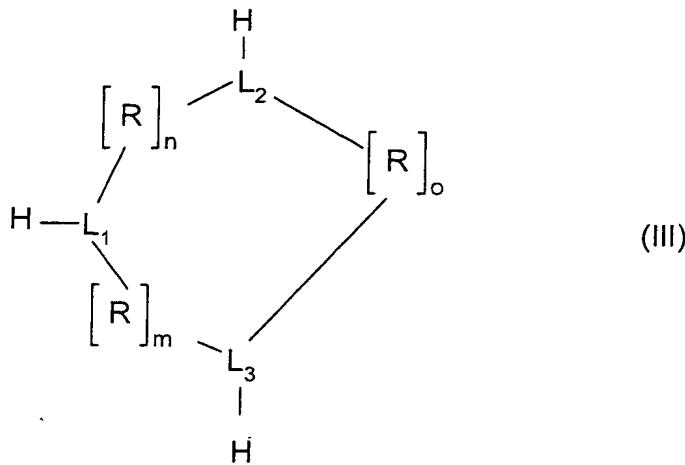
5 L_1 is a group of the cyclopentadienyl type or is isolobal to cyclopentadienyl, optionally substituted by one or more R^1 groups;

L_2 is a group of the cyclopentadienyl type or is isolobal to cyclopentadienyl, or it is selected from the group consisting of N, P, B when $m+n=2$, it is selected from the group consisting of NR^1 , PR^1 , BR^1 , O and S when $m+n=1$;

10 L_3 is selected from the group consisting of N, P, B when $n+o=2$, it is selected from the group consisting of NR^1 , PR^1 , BR^1 , O and S when $n+o=1$;

R^1 is hydrogen, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_3-C_{20} alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br.

15 10. Compounds formula III



wherein

each **R** is independently a structural bridge rigidly connecting L_1 , L_2 and L_3 and is constituted by 1 to 4 chain atoms selected from carbon, silicon, germanium, oxygen, boron; these atoms can be part of fused rings, aromatics rings or spiro rings;

20

m, **n** and **o** are 0 or 1, with the proviso that $m+n+o$ is 2 or 3.

L_1 is a group of the cyclopentadienyl type (or is isolobal) to cyclopentadienyl, optionally substituted by one or more R^1 groups;

5

L_2 is a group of the cyclopentadienyl type (or is isolobal) to cyclopentadienyl, or it is selected from the group consisting of N, P, B when $m+n=2$, it is selected from the group consisting of NR^1 , PR^1 , BR^1 , O and S when $m+n=1$;

L_3 is selected from the group consisting of N, P, B when $n+o=2$, it is selected from the group consisting of NR^1 , PR^1 , BR^1 , O and S when $n+o=1$;

112
2nd

R^1 is hydrogen, C_1-C_{20} alkyl, C_3-C_{20} cycloalkyl, C_6-C_{20} aryl, C_3-C_{20} alkenyl, optionally comprising 1 to 5 heteroatoms such as Si, N, P, O, F, Cl, Br.

10

11. Process for the polymerization of olefins characterized by the use of a catalyst according to claim 8.

12. Polyolefins obtainable by the process of claim 11.

10052426 014302